

**RULE 37 CASE NO. 0225364
DISTRICT 6**

**APPLICATION OF COTTON VALLEY OPERATIONS, INC. FOR AN EXCEPTION TO
STATEWIDE RULE 37 TO DRILL ITS J. H. ALEXANDER, WELL NO. 1, WILLOW
SPRINGS (COTTON VALLEY W) AND WILDCAT FIELDS, GREGG COUNTY, TEXAS**

APPEARANCES:

REPRESENTING:

FOR APPLICANT:

Andrew Gallo (Attorney)
H.C. Woolsey

Cotton Valley Operations, Inc.

FOR PROTESTANT:

H. Philip Whitworth (Attorney)
Don Apeland
Phillip Nobles
Mike Brookins
Tonja Bridges

Dallas Production, Inc.

PROPOSAL FOR DECISION

PROCEDURAL HISTORY

APPLICATION FILED:	June 30, 2000
NOTICE OF HEARING:	September 1,, 2000
DATE CASE HEARD:	September 14, 2000
TRANSCRIPT RECEIVED:	October 2, 2000
RECORD CLOSED:	February 21, 2001
PFD CIRCULATION DATE:	April 11, 2001
HEARD BY:	Mark Tittel, Legal Examiner Thomas H. Richter, P.E., Technical Examiner
CURRENT STATUS:	Protested

STATEMENT OF THE CASE

Cotton Valley Operations, Inc. (hereinafter referred to as “Cotton Valley” or “Applicant”) has applied for an exception to Statewide Rule 37 to drill its J. H. Alexander Lease, Well No. 1 in the Willow Springs (Cotton Valley, W) and Wildcat Fields. The J. H. Alexander Lease (“the subject lease”) is a 51.74 acre tract measuring approximately 865' in width. Because field rules require wells to be placed 467 feet from lease lines, there are no regular locations on the subject lease. The proposed well location lies in the northeast corner of the lease, situated 265 feet from the east lease line, 600 feet from the west lease line, and 467 feet from the north lease line. A copy of the plat filed with Applicant’s W-1 Application for Permit to Drill, Deepen, Plug Back or Re-Enter is attached as Exhibit A. The proposed well would be the first well on the subject lease in the applied-for fields. Cotton Valley contends that it is entitled to an exception to Statewide Rule 37 in order to prevent confiscation. The application is protested by an offset operator, Dallas Production, Inc (hereinafter referred to as “Dallas” or “Protestant”).

DISCUSSION OF THE EVIDENCE

Applicant’s Evidence

The subject tract took its present shape on November 5, 1910, when it was carved out of a 100 acre tract¹. Since then, the subject tract and the remainder of the original 100 acre tract have never been united under common ownership and control. On May 7, 1930, the owner of the subject tract, J. H. Alexander, executed an oil and gas lease to B.A. Skipper. This original lease is still held by production from a well in the East Texas Field.

Because the tract measures only 865' in width and because field rules for the Willow Springs (Cotton Valley, W) and Wildcat Fields require 467' minimum lease line spacing, there are no regular locations on the subject lease. The proposed well would be the first well on the subject lease in the applied-for fields. Accordingly, Cotton Valley argues that an exception to the well spacing rules is required for it to have a reasonable opportunity to recover its fair share of hydrocarbons from the applied-for fields

The subject tract is completely surrounded on all sides by units operated by Protestant and by Williams Company. At the hearing, Cotton Valley presented cumulative production data through April 2000 for 6 nearby wells in the applied-for fields. The McMurrey No. 4 was completed in March 1994 and has produced 722, 891 MCF of gas and 7,006 BBLS of oil. The McMurrey No. 3 was completed in August 1993 and has produced 2,043,313 MCF of gas and 13,309 BBLS of oil. The Castleberry No. 1 was completed in January 1993 and has produced 2,106,064 MCF of gas and 11,576 BBLS of oil. The Castleberry No. 2 was completed in July 1993 and has produced 1,295,233

¹ In the 1910 deed to J. H. Alexander, the subject tract is described as 50 acres, although the evidence submitted by Applicant indicates that the tract is in fact 51.74 acres.

MCF of gas and 10,419 BBLS of oil. The Gray No. 2 was completed in September 1993 and has produced 1,081,626 MCF of gas and 8,941 BBLS of oil. The Castleberry No. 4 was completed in September 1993 and has produced 971,405 MCF of gas and 9,710 BBLS of oil. The mineral interest owners in the subject tract do not own any interest in production from any of the wells surrounding the proposed well.

The proposed well location lies in the northeast corner of the lease, situated 265 feet from the east lease 600 feet from the west lease line and 467 feet from the north lease lines. The proposed well location lies approximately halfway between the two closest wells producing from the subject field: the McMurrey No. 3 and the Castleberry No. 2, both of which are operated by Protestant. The proposed location is approximately 1278' from the McMurrey No. 3 and 1320' from the Castleberry No. 2.

Cotton Valley claims that the proposed location is just inside the 100-year flood plain and that moving the well to the south would put it lower in the flood plain. Cotton Valley did not present any admissible evidence which would establish the location of the 100-year flood plain line. H.C. Woolsey testified based on his own direct observation that the surface of the tract slopes in a southward direction. Mr. Woolsey also testified that there is a creek on the tract west of the proposed location.

Cotton Valley also contends that the well could not be moved much further north than the proposed location. The proposed location is already 467' feet from the northern boundary of the tract. Furthermore, there are houses located near the northern boundary of the tract. City zoning regulation prohibit drilling within 300' from any residence.

Protestant's Evidence

Protestant argues that Cotton Valley's application for a Rule 37 exception should be denied because it contends that Applicant did not have all of the leasehold interest for the entire 51.74 acre tract and because the subject tract is an illegal subdivision. Protestant further argues that the proposed location is not reasonable because it would interfere with production from Protestant's own wells.

Protestant submitted a series of lease assignments recorded in the Gregg County real property records indicating that the original base lease executed by J. H. Alexander on May 7, 1930 had been divided up over the years into 7 parts (see Exhibit B). Leasehold ownership is different in each of the 7 parts and no single leasehold owner has an interest in the entire 51.74 acre base lease. Protestant argues that the creation of these sub-parts of the original base lease constituted an illegal subdivision.

Protestant also argues that Cotton Valley's application is invalid because, although the application purports to be made on the basis of the entire 51.74 tract, Cotton Valley does not have

an assignment or other conveyance covering the southern 20 acre portion of the tract. On cross-examination, Mr. Woolsey admitted that Applicant had assignments covering the roughly 30 acre northern portion of the tract, but did not have an assignment of the approximately 20 acre southern portion. Mr. Woolsey testified that he was in the process of negotiating an assignment on the 20 acre southern portion, but did not have yet have an agreement with the working interest owners.

Protestant further argues that, even if Cotton Valley is entitled to a first well on the tract, the applied-for location is not reasonable because the proposed well will cause “pressure interference” with one or both of its wells offsetting the subject tract, thus reducing the overall recovery of its wells. Protestant acknowledges that one or both of its wells (the McMurrey No. 3 or Castleberry No. 2) will drain a portion of the reserves underlying the Alexander tract. If Cotton Valley’s application is approved at the proposed location, the ultimate recovery from Protestant’s offsetting wells will be reduced.

Protestant argues that if Cotton Valley is granted a well permit, the well should be located on the southern end of the Alexander tract (440' FEL & 590' FSL). Protestant believes that a well located on the south end of the tract will: 1) have a greater ultimate recovery because it will not be in pressure communication with either of its wells; 2) not have an adverse effect on the ultimate recovery of its two wells that are competing for the same reserves; and 3) will result in a greater ultimate recovery for Cotton Valley’s royalty owners although the greater percentage of reserves would be recovered from Dallas Production’s offsetting tracts.

Protestant believes the drainage area shapes for wells producing from the Cotton Valley Formation are elliptical and the size and shape are determined by the size of the calculated fracture stimulation length, the estimated ultimate recovery of a well, and a “formation fracture orientation” preference. The Cotton Valley Formation is considered a tight gas formation, therefore wells must be fracture stimulated. Fracture stimulation companies have mathematical models which can produce a calculated horizontal fracture length based on various reservoir geological characteristics and reservoir engineering parameters. For the subject well, Protestant used the average fracture lengths of its two offsetting wells. Knowing the ultimate recovery of a well and hence the drainage area, the width of the ellipse can be mathematically determined. For calculation purposes, the average of the parameters of the two offsetting Dallas Production wells was used and 1.25 BCF of ultimate recoverable gas was used for the Alexander Well No. 1. The drainage area of the proposed well was estimated to be 41 acres.

Finally, Protestant believes there is a known “formation fracture orientation” preference based on a report by the Gas Research Institute - Chicago, performed in 1988-89 in the “Waskom Field”, being N 80°E. Placement of the McMurrey, Castleberry and proposed Alexander wells on a plat with the corresponding ellipses shows drainage overlapping of the three wells competing for the same reserves at the proposed location. However, if the proposed well is located on the southern end of the tract, the drainage area ellipse for the proposed well does not intersect either of the ellipses for Protestant’s existing wells. Protestant contends that its elliptical drainage model is substantiated

by its experience with four wells approximately 2 miles away from the proposed location. When Protestant completed a fourth well among three existing wells, the production declined in one of the offsetting wells and the bottomhole pressure in the new well was not the anticipated virgin reservoir pressure expected.

Accordingly, Protestant believes that its alternate location is more reasonable than Cotton Valley's proposed location. At this alternate location, Protestant argues, Cotton Valley will probably encounter virgin reservoir pressure, will recover reserves that no other current well in the reservoir will recover, will probably have a higher ultimate recovery, and will not compete for the same reserves that Protestant's own wells are currently recovering.

EXAMINERS' OPINION

Legal Subdivision

Although Protestant does not dispute that the 51.74 tract took its shape in 1910, long before attachment of spacing rules, Protestant argues that the division of the working interest in the original 51.74 base lease into 7 separate parts after 1930 constituted a voluntary subdivision. Neither party cited any case law with respect to whether or not division of the working interest on a tract constitutes a "subdivision" within the meaning of Rule 37(g), where the ownership of the mineral estate has not changed and the base lease remains in force. The text of Rule 37(g)(2), which states that "(a)ny subdivision of property creating a tract of such size and shape that it is necessary to obtain an exception to the spacing rule before a well can be drilled thereon is a voluntary subdivision..." does not offer clear guidance on this issue.

In this case, however, it is unnecessary resolve this issue, because the application is brought on the basis of the entire 51.74 tract, not on the basis of any of the sub-parts. Furthermore, even if one were to accept Protestant's argument that the division of the working interest in the original 51.74 base lease into 7 separate parts after 1930 constituted a voluntary subdivision, an exception permit would still be proper under the Century Doctrine. In *Railroad Commission of Texas v. Magnolia Petroleum Co.*, 109 S.W.2d 967 (1937), the Texas Supreme Court upheld an exception permit granted to Century Refining Company to drill a well on a 1.6 acre tract which was voluntarily subdivided from a larger 47 acre tract. The Court upheld the permit because the original 47 acre tract was not receiving its fair share of oil. Because the original 47 acre tract was a legal subdivision, confiscation on the original tract was a sufficient basis for a spacing exception on the 1.6 acre subdivision. Accordingly, even if the post 1930 division of the original base lease constituted a voluntary subdivision, under the Century Doctrine Cotton Valley would still be able bring the application on the basis of the reconstituted 51.74 acre tract which took its current shape in 1910.

Good Faith Claim

Protestant contends that it was improper for Cotton Valley to file its application for a drilling permit on the basis of the entire 51.74, because Cotton Valley had not demonstrated that it had obtained the leasehold interest for the entire tract. Protestant also points out that Cotton Valley did not demonstrate that it had authority to pool the various portions of the lease covered by its assignments. However, since the mineral ownership is the same throughout the entire 51.74 acre tract, Protestant's objections with respect to pooling authority are without merit. Furthermore, the fact that Cotton Valley does not have assignments from 100 percent of the working interest owners does not render the application defective. The evidence in the record indicates that all working interest owners from whom Cotton Valley did not have assignments were included on the service list and given notice of the hearing. None appeared at the hearing to protest the application. Cotton Valley established that the base lease covering the 51.74 tract is still in full force and effect and that it has obtained assignments from a substantial portion of the working interest ownership in the tract. Accordingly, Cotton Valley has established that it has a good faith claim to operate based on the original 1930 lease.

Reasonable Location

An owner or lessee of land is entitled to a fair chance to recover the oil and gas in or under his land, or their equivalents in kind, and denial of such fair chance would be 'confiscation' within the meaning of Rule 37. *Gulf Land Co. v. Atlantic Refining Co.*, 131 S.W.2d 73, 80 (Tex. 1939) Because Applicant is seeking the first well on this tract in the applied-for fields, Applicant argues that refusal to permit the well would result in confiscation as a matter of law. Furthermore, an applicant seeing an exception to prevent confiscation need only establish that its proposed location is reasonable, not necessarily that it is the best location on the subject tract. The examiners find that Cotton Valley's proposed exception location is reasonable.

Protestant's contention that the proposed location would unduly interfere with production from its offsetting wells is not persuasive. Although it was not offered into evidence, Protestant relied on a report by the "Gas Research Institute-Chicago" concerning the "Waskom Field" in 1988 or 1989 which purports to establish a definite fracture strike orientation in the "Cotton Valley Formation." The examiners are not familiar with the subject report nor any other finding or report ever that the Cotton Valley Formation has an established fracture strike orientation. Additionally, the Waskom (Cotton Valley) Field is some 40 miles to the east of the subject area. Protestant claims that if this formation fracture strike orientation exists, then it is universal throughout the Cotton Valley. Radial flow drainage, not elliptical flow drainage, is the industry standard accepted flow regime for gas wells in the Cotton Valley Formation.

The size and shape of a fracture stimulation is far from an exact science. Fracture stimulation companies have the mathematical model capability to design a fracture job that has a horizontal fracture length for example of 1,425'. However, the input parameters are based on the assumption that the many variables are constant as well as continuous. There is no definitive engineering

method to determine the *actual* resulting fracture size, shape and dimension after a fracture stimulation job is done on a well.

Protestant's attempt to substantiate the ellipsoid drainage area theory through its reported experience concerning the four wells approximately 2 miles from the subject area is flawed. The well Protestant claims experienced a production decrease, the T. Collins GU Well No. 1, is not even operated by Dallas Production and no evidence was presented as to how CW Resources operates the well. Next, the ultimate recoveries of the four wells are: 1.7 BCF, 1.45 BCF, 1.04 BCF and 1.88 BCF. Dallas Production's Exhibit No. 21, which purports to show how the ellipsoid drainage area overlaps between two wells (Collins GU Well No. 1 and Dallas Production's Stinchcomb Well No. 4) uses the same approximately 40 acre ellipsoid shape for all four wells. All have the same major axis and minor axis lengths, which in effect indicates that they all had identical fracture stimulation jobs. Yet in the area of the proposed well, the Dallas Production's Castleberry No. 2 has an estimated ultimate recovery of 1.7 BCF and drainage area of 67 acres. Dallas Production's McMurrey No. 3 has an estimated ultimate recovery of 2.7 BCF and a drainage area of 76 acres. If the true drainage area had been determined for each of the four well examples, the industry accepted radial drainage pattern would show the overlap, if indeed there is communication, and not the purported ellipsoid pattern.

Protestant attempted to show that a well location on the southern end of the Alexander tract would not overlap the drainage areas of its two offsetting wells compared to the "proposed location". In order to calculate the drainage area for the proposed Alexander Well No. 1, it used the average parameters of the McMurrey No. 3 and Castleberry No. 2 (average recovery per acre-foot, average thickness of pay, average fracture stimulation major axis "prop" length) as representative of the conditions that would exist underlying the Alexander tract. However, Protestant used an estimated ultimate recovery of 1.25 BCF of gas for the Alexander well.² Though Protestant used the average of all the other parameters of the McMurrey No. 3 and Castleberry No. 2, it did not use the average estimated ultimate recovery which is 2.2 BCF of gas $(1.7 \text{ BCF} + 2.7 \text{ BCF}/2)$ and which would reflect a drainage area of 72 acres.

Furthermore, even if one were to accept Protestant's calculations regarding drainage patterns, this would not necessarily make the proposed location unreasonable. Operators commonly attempt to locate a well on a lease as close as possible to offsetting wells in order to protect against drainage. Under the rule of capture, Cotton Valley is entitled to compete for the same reserves being produced by Dallas Production's offsetting wells.

The proposed well location is reasonable though it is not located in the "geometric" center of the 51 acre tract. Although located on the north side of the tract, the proposed well is nevertheless regular to the northern lease line. The well is approximately equidistant from Dallas Production's two offsetting wells (1278' from the McMurrey No. 3 and 1320' from the Castleberry No. 2). At the alternate location proposed by Dallas, the well would be approximately the same distance to the

² Dallas Production's witness stated that he uses 1.25 BCF for the estimated recovery for all wells in the Cotton Valley Formation.

Castleberry well and about 33% farther from the McMurrey well. If the proposed well was located in the geometric center of the subject tract, the location would be closer to both Dallas Production wells. The proposed location is as reasonable as any other location on this substandard size and shape tract.

FINDINGS OF FACT

1. At least 10 days notice of this hearing was given to the designated operator, all lessees of record for tracts that have a designated operator, all lessees of record for tracts that have no designated operator, and all owners of record of unleased mineral interests for each affected tract adjacent to the J. H. Alexander Lease and each tract nearer to the proposed well location than the prescribed minimum distance.
2. Cotton Valley Operations, Inc. (hereinafter referred to as “Cotton Valley” or “Applicant”) has applied for an exception to Statewide Rule 37 to drill its J. H. Alexander Lease, Well No. 1 in the Willow Springs (Cotton Valley, W) and Wildcat Fields.
3. The J. H. Alexander Lease (“the subject lease”) is a 51.74 acre tract measuring approximately 865' in width. The proposed well location lies in the northeast corner of the lease, situated 265 feet from the east lease 600 feet from the west lease line and 467 feet from the north lease lines.
4. Because the subject lease is only 865' wide and field rules require wells to be placed 467 feet from lease lines, there are no regular locations on the lease.
5. The proposed well would be the first well on the subject lease in the applied-for fields.
6. The subject tract took its present shape on November 5, 1910. Since then, the subject tract and the remainder of the original 100 acre tract from which it was carved have never been united under common ownership and control.
7. On May 7, 1930, the owner of the subject tract, J. H. Alexander, executed an oil and gas lease to B.A. Skipper. The original lease is still held by production from a well in the East Texas Field.
8. The original base lease executed by J. H. Alexander on May 7, 1930 has been divided up over the years into 7 parts. Leasehold ownership is different in each of the 7 parts and no single leasehold owner has an interest in the entire 51.74 acre base lease. Cotton Valley has assignments covering the roughly 30 acre northern portion of the tract, but does not have an assignment of the approximately 20 acre southern portion.
9. The subject tract is surrounded on all sides by producing wells. The mineral interest owners in the subject tract do not own any interest in production from any of the wells surrounding the proposed well.

10. The proposed well location is reasonable.
 - a. The proposed well location lies more or less between the two closest wells producing from the subject field: the McMurrey No. 3 and the Castleberry No. 2, both of which are operated by Protestant. The proposed location is approximately 1278' from the McMurrey No. 3 and 1320' from the Castleberry No. 2.
 - b. The proposed well location is regular to the north lease line.
 - c. There is a creek on the tract to the west of the proposed location.

CONCLUSIONS OF LAW

1. Proper notice of hearing was timely issued by the Railroad Commission to appropriate persons legally entitled to notice.
2. All things necessary to the Commission attaining jurisdiction over the subject matter and the parties in this hearing have been performed.
3. The J. H. Alexander Lease is a legal subdivision.
4. Under the Century Doctrine, even if the division of the working interest in the original 51.74 base lease into separate parts after 1930 were deemed to constitute voluntary subdivisions, Cotton Valley can obtain a Rule 37 exception for the preexisting legal subdivision upon proof of confiscation.
5. Cotton Valley has a good faith claim to operate and to bring this application on behalf of the subject lease.
6. A well spacing rules exception is required to give Cotton Valley a reasonable opportunity to recover its fair share of hydrocarbons from the applied-for fields.
7. An exception to Statewide Rule 37 for a well at the applied-for location is necessary to prevent confiscation from the applied-for fields.

RECOMMENDATION

The examiners recommend that the above findings and conclusions be adopted and that Cotton Valley's application be granted.

Respectfully submitted,

Thomas H. Richter, P.E.
Technical Examiner

Mark H. Tittel
Hearings Examiner

Thomas H. Richter, P.E.
Technical Examiner